E1 cont

types to be mainly propagated in the market. However, a more compact and lightweight [of] image reading device has been further required for these types.

Column 2, paragraph beginning at line 21;

In order to overcome the above [disadvantage] disadvantages of the prior art, an object of this invention is to provide a device for reading an image (an image reading device) which has a compact structure, high photoresponsiblity and highly-effective (photosensitive) and is capable of reading out an image with high precision and high gradation.

E2

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Column 4, paragraph beginning at line 40;

Monocrystal silicon semiconductor serving as a target is sputtered by a mixed gas of hydrogen and argon to separate atomic silicon from the target due to the sputtering (impinging) of heavy atoms of argon upon the target. The separated silicon atoms [flight] fly to a substrate and [is] are deposited on a film-forming surface of the substrate. At the same time, an agglomerate into which atoms of several tens to several hundred thousand are assembled is also separated as a cluster from the target, [flights] flies to the substrate and is deposited on the film-forming surface of the substrate. During the flight of the silicon atoms and clusters, the hydrogen atoms bond to dangling bonds of the silicon atoms on the peripheral surface of the clusters. These clusters having Si-H bonds on the peripheral surface thereof are orderly deposited on the film-forming surface of the

E3

substrate and form an area in which the clusters are arranged with relatively high order (regularity) on the film-forming surface (hereinafter referred to as "high-orderly area"). That is, the [highly] high-orderly clusters having the Si-H bonds on the peripheral surface thereof and the pure amorphous silicon are [mixed] deposited on the film-forming surface of the substrate. The deposited mixture is subjected to a heat treatment 450° C. to 700° C. in non-oxidation (non-oxide) gas atmosphere to react each Si-H bond on the peripheral surface of the clusters with another Si-H bond of the clusters and form Si-Si bonds, so that a silicon semiconductor film is formed on the substrate.

Column 5, paragraph beginning at line 37;

As the degree of the anchoring (linking) effect between the clusters in the semiconductor film is heightened, the carrier mobility is [more] increased. In order to heighten the anchoring effect, the amount of oxygen to be contained in the semiconductor film should be decreased below 7×10^{19} cm^{-3}, and preferably below 1×10^{19} cm^{-3}. In this case, the crystallization can be performed at a temperature below 600°C., and a high carrier mobility is obtainable.

Column 7, paragraph beginning at line 3;

Through the above annealing treatment, the silicon semiconductor film 3 is phase-changed from an amorphous state to a [highly] high-orderly state, and a part thereof has a crystal state. Particularly, an area which has a relatively highly orderly arrangement in

the film-forming process is promoted to be crystallized and the phase state thereof is liable to be changed to the crystal state. However, this area is linked to another area through silicon atoms therebetween, and thus pull against one another. In the laser Raman spectrometry for the area the spectral peak is observed to be shifted to a lower frequency side than the peak (frequency) 522 (cm^{-1}) of the monocrystal silicon. Further, the area is found to have an apparent grain diameter of 50 to 500 Å from calculation using peak width at half height, and thus the area seems to have a microcrystal-like state. In fact, there are many areas having such a microcrystal-like state in the silicon semiconductor film, and each of the areas has a cluster structure. These areas are linked through the silicon-anchoring therebetween, so that the silicon semiconductor film 3 has a semi-amorphous structure.

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Column 8, paragraph beginning at line 56;

[These] The boron-doping and phosphorus-doping are carried out through the insulting film 4. However, as shown in Fig. 1(B), the gate electrodes 5 and 5' and the mask 5" may be used as a mask to remove the silicon oxide film 4 on the silicon semiconductor film 3, and then boron and phosphorus are directly doped into predetermined areas of the silicon semiconductor film 3 by the ion injection (ion implantation) method.

E6